

WHAT IS CLAIMED IS:

1. A method for forming non-separating diffusers in a part comprising the steps of:

fabricating at least one metering hole in a part;
providing at least one electrode comb comprising a tooth said tooth comprising a nose comprised of a plurality of diffuser surfaces intersecting at a point on a tooth centerline, and at least one of said plurality of diffuser surfaces truncated by an offset from the centerline; and
fabricating at least one diffuser hole with said electrode comb in said part so that said at least one diffuser hole intersects said at least one metering hole at a transition region.

2. The method of claim 1, wherein said fabricating said at least one metering hole comprises utilizing a method of fabrication selected from the group consisting of electro discharge machining (EDM), LASER drilling, and electron beam drilling.

3. The method of claim 1, wherein fabricating said at least one metering hole is performed prior to fabricating said at least one diffuser hole.

4. The method of claim 1, wherein providing said electrode comb comprises the step of providing an electrode comb wherein at least one of said plurality of diffuser surfaces is offset from the comb centerline by a distance sufficient to eliminate a step between a side of said metering hole and said diffuser hole.

5. The method of claim 4, wherein fabricating said at least one diffuser hole comprises the step of:

inserting said electrode comb into said part such that said at least one diffuser hole intersects said at least one metering hole to form at least one transition region.

6. The method of claim 1, wherein fabricating one metering hole diffuser is performed prior to fabricating said at least one metering hole.

7. The method of claim 6, wherein fabricating said at least one metering hole comprises the step of:

fabricating said at least one metering hole such that said at least one metering hole intersects with said at least one diffuser hole to form at least one transition region.

8. The method of claim 1, wherein said additional angle portion of each of said at least one diffuser comprises an angle not greater than 12° .

9. The method of claim 1, wherein said additional angle portion of each of said at least one diffuser comprises an angle of approximately 10° .

10. The method of claim 1, wherein fabricating at least one metering hole in a part comprises fabricating said at least one metering hole in a turbine component.

11. An electrode comb for providing diffusing holes comprising:
at least one nose extending to a point along a centerline, said nose comprising an additional angle portion capable of forming a transition region.